which are put into their own rotational motion by the back and forth vibratory action when the user brushes his teeth. The force generated by the action of numerous bristles produces liquid currents in the saliva which can dislodge particles trapped between and around the teeth and gums and improve the cleaning of the teeth, the removal of plaque and the prevention of plaque formation.

The grooved bristle of this invention has been particularly described as being symmetrical through its length, however, the invention may also use non-symmetrical or tapered bristles having other shapes or structures as may be desired.

What I claimed is:

Claim 1. A bristle having a base end, and a tip end connected to each other by means of a substantially rigid shaft portion wherein said base end is fixedly placed on the base portion of a brush device and wherein said substantially rigid shaft has at least one groove along its longitudinal axis and wherein said substantially rigid shaft maintains said bristle in a free-standing upright erect position on the base portion of said brush device but wherein said shaft is sufficiently flexible so that said bristle will twist, bend and rotate on its axis when slight vertical and horizontal pressures are applied to the tip end of said bristle during brushing or cleaning and such that the twisting, bending and

rotating of said bristle upon the application of vertical and horizontal pressure on the tip of said bristle causes the tip end of said bristle and said substantially rigid shaft of said bristle to act as an abrasive device with respect to the surfaces to be cleaned and wherein said bristle is arranged in multiple tufts on said base portion of said brush with each of said tufts comprising multiple bristles and wherein the twisting, bending and abrasiveness of said substantially rigid shaft causes said brush device to be a more effective cleanser.

Claim 2. The bristle as claimed in claim 1 wherein the cross-sectional diameter of said spiral groove is approximately 10 to 15 percent of the cross sectional diameter of said bristle and wherein said groove on said bristle may be vertical or run either in a clockwise or counterclockwise direction and wherein on an individual bristle said groove must will run in a vertical clockwise or counterclockwise direction to facilitate the removal of plague and other waste materials during the cleaning process.

Claim 3. A bristle as claimed in Claim 1 wherein said bristle has at least one groove along said substantially rigid shaft and wherein said groove is of uniform diameter throughout the length of said substantially rigid shaft and wherein the ratio of the diameter of said bristle to the diameter of said groove is 4:1.

Claim 4. The bristle as claimed in claim 1 wherein each of said bristles is made of a plastic material and wherein said

bristles when arranged in tufts of bristles with the base end of said bristles embedded in the base portion of said brush device, said bristles and said tufts are of such flexibility as to be capable of bending and rotating on an axis at an angle of thirty to ninety degrees when used in scrubbing or cleaning.

Claim 5. A bristle for use in toothbrushes, said bristle consisting of a base end, and a tip end connected to each other by means of a substantially rigid shaft portion and wherein said tooth brush includes a head portion and a handle portion and wherein said base end of said bristle is maintained in a fixed position on the head of said toothbrush and wherein said substantially rigid shaft of said bristle has at least one groove along its longitudinal axis and wherein said bristle is capable of standing stiff and erect on said head of said toothbrush but is sufficiently flexible so that said bristle will twist, bend and rotate on its axis, but remain substantially rigid when vertical and horizontal pressures are applied to the tip of said bristle during brushing and such that the twisting, bending and rotating of said bristle upon the application of vertical and horizontal pressure on the tip of said bristle causes the tip end of said bristle and said substantially rigid shaft of said bristle to act as an abrasive device with respect to the surfaces to be cleaned, and wherein the twisting, bending and abrasiveness of said substantially rigid shaft causes said toothbrush to be a more effective cleanser and wherein the

application of vertical and horizontal pressure in a back and forth scrubbing motion on the tip of said bristle causes said bristle to twist and rotate in the manner of an agitator of a washing machine, thereby producing fluid cross currents in the saliva and forcing the saliva into the spaces in and around the teeth and gums and wherein the twisting and bending of said shaft of said bristle increases the contacts between said shaft of said bristle and the surface of the teeth and gums so that said groove on said shaft of said bristle acts as an abrasive devices to remove foreign particles lodged between and around the teeth and gums.

Claim 6. A tooth brush as claimed in claim 5 having a head portion and a handle portion wherein said head portion has a plurality of holes adapted for receiving tufts of bristles in each hole and wherein each tuft consists of not less than ten bristles each of said bristles having one or more spiral grooves along said longitudinal axis of said bristles and wherein upon the application of slight pressure to the tips of said bristles and use of a scrubbing action said bristle bends and rotates and agitates saliva in the mouth and wherein said tips and said longitudinal axis of said bristles act as cleaning surfaces with respect to the teeth and gums and whereby said longitudinal axis having said spiral grooves acts as an extended scraping device for the removal of waste materials, including plaque, from the teeth and gums.

Claim 7. A brush device as claimed in claim 1 wherein the

body portion of said device has a plurality of holes adapted for receiving tufts of bristles in each hole wherein each tuft consists of not less than ten bristles each of said bristles having one or more spiral grooves along said longitudinal axis of said bristle wherein the scrubbing action of said brush device causes said bristle to bend and twist about its axis and to agitate liquid substances which are present in the area to be cleaned and wherein the tips of said bristles and said substantially rigid shaft of said bristles act as cleaning surfaces and whereby said longitudinal axis having said spiral grooves acts as an extended scraping device with respect to the surface to be cleaned.

Claim 8. A toothbrush including a bristle having a substantially rigid shaft having a head portion and a handle portion wherein said head portion has a plurality of holes therein for receiving tufts of said bristle in each hole and wherein each tuft of said bristle consists of at least ten bristles each of said bristles having at least one groove along the longitudinal axis of said bristle and wherein upon the application of pressure to the tip thereof and use of a scrubbing action thereon each bristle of said tufts of bristles bends, rotates and agitates saliva in the mouth and wherein said tip and said longitudinal surface area of each of said bristles in said tufts of bristles act as cleaning surfaces with respect to the teeth and gums and whereby said groove on said longitudinal axis of each bristle acts as an extended

scraping device for the removal of waste materials, including plaque, from the teeth and gums.

Claim 9. A bristle structure as claimed in claim 5 for use in toothbrushes wherein the application of vertical and horizontal pressure in a back and forth scrubbing motion on the tip of said bristle causes said bristle to twist and rotate in the manner of an agitator of a washing machine, thereby producing fluid cross currents in the saliva and forces the saliva into the spaces in and around the teeth and gums and wherein the twisting and bending of said shaft of said bristle increases the contacts between said shaft of said bristle and the surface of the teeth and gums so that said groove(s) on said shaft of said bristle act as abrasive device to remove foreign particles lodged between and around the teeth and gums.

Claim 10. A brush including a bristle having a substantially rigid shaft and a bristle receiving body portion having a plurality of substantially rigid bristles disposed therein and wherein said body portion of said brush has a plurality of holes adapted for receiving said bristles and wherein said bristles are arranged in tufts of bristles wherein each tuft consists of at least ten bristles and wherein each of said bristles has at least one groove along the longitudinal axis of said substantially rigid shaft of each of said bristles wherein the scrubbing action of said brush causes each of said bristles to bend, twist and rotate about its

axis and to agitate liquid substances which are present in the area to be cleaned and wherein the bending, twisting and rotating of said bristles causes the tips of said bristles and said substantially rigid shafts of said bristles to act as cleaning surfaces and whereby said longitudinal axis having said groove acts as an extended scraping device with respect to the surface to be cleaned.

Claim 11. A brush device as claimed in claim 6 wherein said at least one groove on said bristle runs either in a clockwise or counter clockwise direction and wherein on an individual bristle said at least one groove runs vertically, clockwise or counter clockwise, only, and wherein said bristle when arranged in tufts of bristles said at least one groove on said bristle comprising said tufts of bristles runs vertically, clockwise or counterclockwise.